

Title (en)
PROJECTION ILLUMINATION METHOD, PROJECTION ILLUMINATION SYSTEM, LASER BEAM SOURCE AND BANDWIDTH NARROWING MODULE FOR A LASER BEAM SOURCE

Title (de)
PROJEKTIONSBELICHTUNGSVERFAHREN, PROJEKTIONSBELICHTUNGSANLAGE, LASERSTRAHLUNGSQUELLE UND BANDBREITEN-EINENGUNGSMODUL FÜR EINE LASERSTRAHLUNGSQUELLE

Title (fr)
PROCÉDÉ D'EXPOSITION PAR PROJECTION, INSTALLATION D'EXPOSITION PAR PROJECTION, SOURCE DE RAYONNEMENT LASER ET MODULE DE RÉTRÉCISSEMENT DE LARGEUR DE BANDE POUR UNE SOURCE DE RAYONNEMENT LASER

Publication
EP 2399170 B1 20130123 (DE)

Application
EP 10703169 A 20100204

Priority
• EP 2010000669 W 20100204
• DE 102009010560 A 20090217

Abstract (en)
[origin: WO2010094399A1] With a projection illumination method for illuminating a radiation sensitive substrate arranged in the region of a screen of a projection objective with at least one image of a pattern of a mask in the region of a surface of the projection objective, laser radiation is used with a spectral intensity distribution $I(?)$ dependant on the circular frequency $?$. The laser radiation is characterized by an aberration parameter a according to: (I) and a coherence time t : according to (II). The laser radiation is introduced into an illumination system for creating an illumination radiation directed to the mask and the pattern is displayed by means of a projection objective on the substrate. The spectral intensity distribution is set in a way, such that for a line shape parameter $at2$ the condition $at2 = 0.3$ applies. Thus the influence of temporally varying speckles on the image creation can be reduced compared to conventional methods, without increasing the influence of chromatic aberrations on the image creation.

IPC 8 full level
G02B 27/48 (2006.01); **G03F 7/20** (2006.01); **H01S 3/225** (2006.01)

CPC (source: EP KR US)
G02B 27/48 (2013.01 - EP KR US); **G03F 7/00** (2013.01 - KR); **G03F 7/20** (2013.01 - KR); **G03F 7/70025** (2013.01 - US); **G03F 7/70041** (2013.01 - EP US); **G03F 7/70575** (2013.01 - EP US); **G03F 7/70583** (2013.01 - EP US); **H01S 3/225** (2013.01 - KR); **H01S 3/08009** (2013.01 - EP US); **H01S 3/225** (2013.01 - EP US)

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

DOCDB simple family (publication)
DE 102009010560 A1 20100826; CN 102317868 A 20120111; CN 102317868 B 20140409; EP 2399170 A1 20111228; EP 2399170 B1 20130123; JP 2012518286 A 20120809; JP 5048872 B2 20121017; KR 101295418 B1 20130809; KR 20110126705 A 20111123; US 2011304837 A1 20111215; US 8896816 B2 20141125; WO 2010094399 A1 20100826

DOCDB simple family (application)
DE 102009010560 A 20090217; CN 201080008062 A 20100204; EP 10703169 A 20100204; EP 2010000669 W 20100204; JP 2011550449 A 20100204; KR 20117021535 A 20100204; US 201113208472 A 20110812